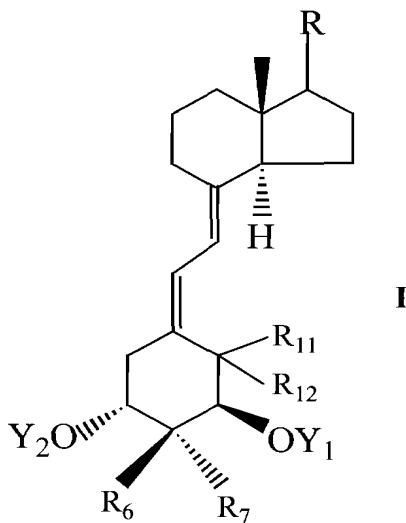


Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

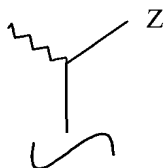
Listing of Claims:

1. (Currently Amended) A method of increasing rate of skeletal repair in a mammal having a bone implant or bone transplant by stimulating osteoblast-mediated growth of new bone at the site of the transplant or implant, in a mammal comprising administering to ~~a mammal in need thereof~~ the mammal at the site of the implant or transplant, in an immobilized, slow release form, a therapeutically effective amount of a compound having the formula:



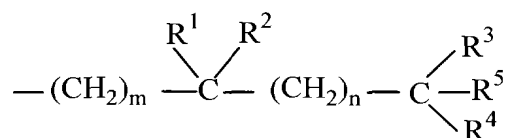
where Y_1 and Y_2 , which may be the same or different, are each selected from the group consisting of hydrogen and a hydroxy-protecting group, where R_{11} and R_{12} are each hydrogen or taken together are a methylene group, where R_6 and R_7 , which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and alkoxy, with the proviso that R_6 and R_7 cannot both be hydrogen, or R_6 and R_7 when taken together may represent the group $-(CH_2)_x-$

where X is an integer from 2 to 5, or R₆ and R₇ when taken together may represent the group =CR₈R₉ where R₈ and R₉, which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and alkoxy, or when taken together R₈ and R₉ may represent the group -(CH₂)_x- where X is an integer from 2 to 5, and where the group R represents



where the stereochemical center (corresponding to C-20 in steroid numbering) may have the R or S configuration, (i.e. either the natural configuration about carbon 20 or the 20-epi configuration), and where Z is selected from Y, -OY, -CH₂OY,

-C≡CY and -CH=CHY, where the double bond may have the cis or trans geometry, and where Y is selected from hydrogen, methyl, -COR⁵ and a radical of the structure:



where m and n, independently, represent the integers from 0 to 5, where R¹ is selected from hydrogen, deuterium, hydroxy, protected hydroxy, fluoro, trifluoromethyl, and C₁₋₅-alkyl, which may be straight chain or branched and, optionally, bear a hydroxy or protected-hydroxy substituent, and where each of R², R³, and R⁴, independently, is selected from deuterium, deuterioalkyl, hydrogen, fluoro, trifluoromethyl and C₁₋₅ alkyl, which may be straight-chain or branched, and optionally, bear a hydroxy or protected-hydroxy substituent, and where R¹ and R², taken together, represent an oxo group, or an alkylidene group, =CR²R³, or the group -(CH₂)_p-, where p is an integer from 2 to 5, and

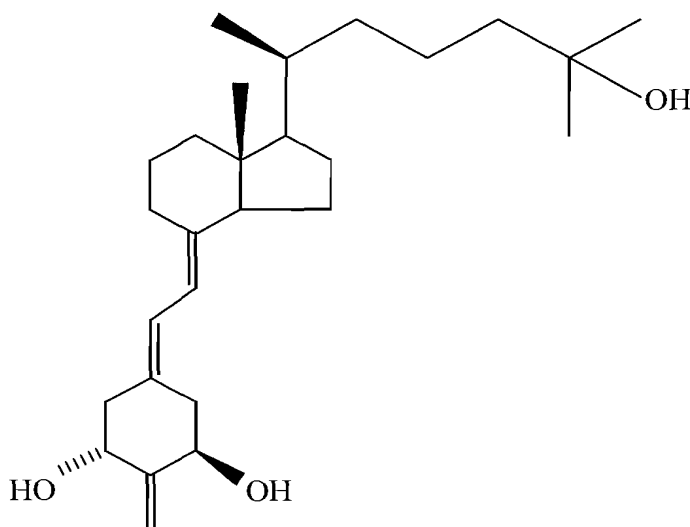
where R^3 and R^4 , taken together, represent an oxo group, or the group $-(CH_2)_q-$, where q is an integer from 2 to 5, and where R^5 represents hydrogen, hydroxy, protected hydroxy, or C_{1-5} alkyl and wherein any of the CH-groups at positions 20, 22, or 23 in the side chain may be replaced by a nitrogen atom, or where any of the groups $-CH(CH_3)-$, $-(CH_2)_m-$, $-CR_1R_2-$ or $-(CH_2)_n-$ at positions 20, 22, and 23, respectively, may be replaced by an oxygen or sulfur atom.

2.-7. (Cancelled)

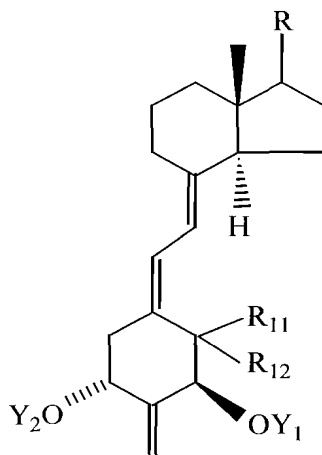
8. (Original) The method of claim 1 wherein the compound is administered in a dosage of from $0.01\mu\text{g}$ to $50\mu\text{g}$ per day.

9. (Original) The method of claim 1 wherein the mammal is a human.

10. (Original) The method of claim 1 wherein the compound administered is 2-methylene-19-nor-20(S)- $1\alpha,25$ -dihydroxyvitamin D_3 having the formula:



11. (Original) The method of claim 1 wherein the compound administered is an acylated derivative having the formula:



where Y^1 and Y^2 independently represent hydrogen or an acyl group, and with the proviso that R^5 is $-OY_3$ and Y_3 is selected from the group consisting of acyl or a hydrocarbyloxycarbonyl.

12. (Original) The method of claim 11 wherein the compound is a triacetate such that Y_1 , Y_2 and Y_3 are each CH_3CO- .

13. (Original) The method of claim 11 wherein the compound is a trihexanoate such that Y_1 , Y_2 and Y_3 are each $CH_3(CH_2)_4CO-$.

14. (Original) The method of claim 11 wherein the compound is a trinonanoate such that Y_1 , Y_2 and Y_3 are each $CH_3(CH_2)_7CO-$.

15. (Original) The method of claim 11 wherein the compound is a 25-acetate such that Y_1 and Y_2 are both hydrogen and Y_3 is CH_3CO- .

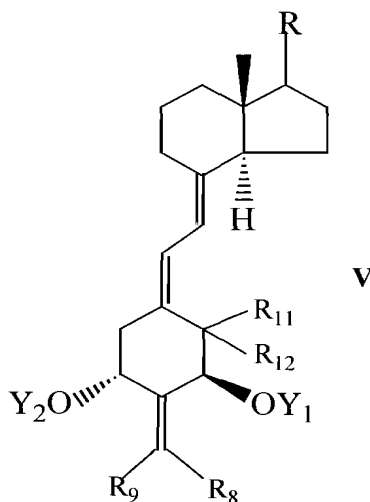
16. (Original) The method of claim 11 wherein the compound is 2-methylene-19-nor-1 α ,25(OH) $_2$ -D $_3$ -1,3,25-triacetate.

17. (Original) The method of claim 11 wherein the compound is 2-methylene-19-nor-1 α ,25(OH) $_2$ -D $_3$ -1,3,25-trihexanoate.

18. (Original) The method of claim 11 wherein the compound is 2-methylene-19-nor-1 α ,25(OH) $_2$ -D $_3$ -1,3,25-trinonanoate.

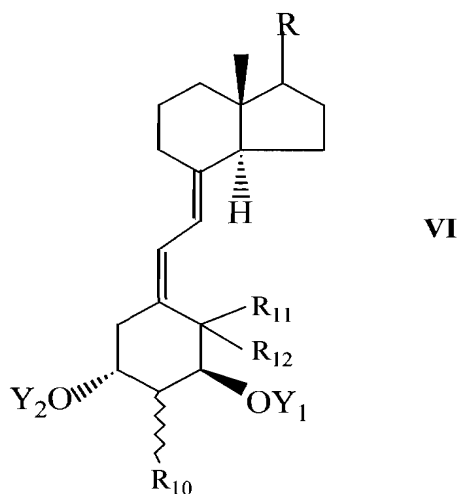
19. (Original) The method of claim 11 wherein the compound is 2-methylene-19-nor-1 α ,25(OH) $_2$ -D $_3$ -25-acetate.

20. (Original) The method of claim 1 wherein the compound administered is selected from the group consisting of:



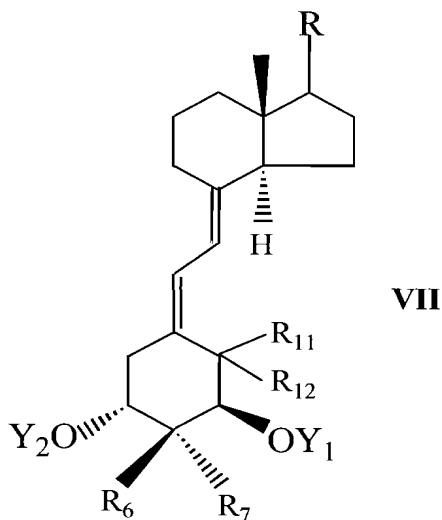
where Y $_1$, Y $_2$, R $_{11}$, R $_{12}$ and R are as defined in claim 1 and R $_8$ and R $_9$, which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl and fluoroalkyl, or, when taken together represent the group -(CH $_2$) $_X$ - where X is an integer from 2 to 5.

21. (Original) The method of claim 1 wherein the compound administered is selected from the group consisting of:



where Y_1 , Y_2 , R_{11} and R_{12} and R are as defined in claim 1 and R_{10} is selected from the group consisting of alkyl, hydroxyalkyl and fluoroalkyl.

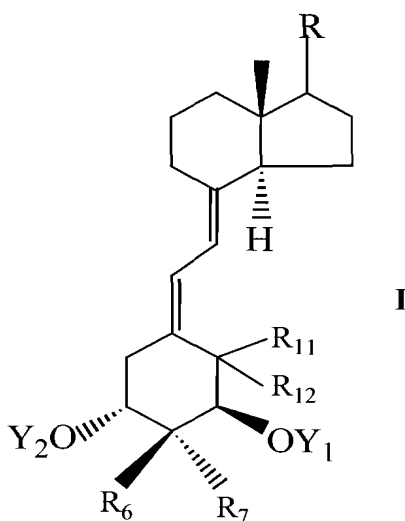
22. (Original) The method of claim 1 wherein the compound administered is selected from the group consisting of:



where Y_1 , Y_2 , R_{11} , R_{12} , R_6 , R_7 and R are as defined in claim 1 with the proviso that R^5 is -
 OY_3 and Y_3 is selected from the group consisting of an acyl or a hydrocarbyloxycarbonyl.

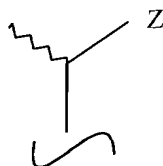
23.-28. (Cancelled)

29. (New) A method of increasing rate of skeletal repair in a mammal having a bone implant or bone transplant by stimulating osteoblast-mediated growth of new bone at the site of the transplant or implant, comprising administering to the mammal at the site of the implant or transplant, in an immobilized form, a therapeutically effective amount of a compound having the formula:



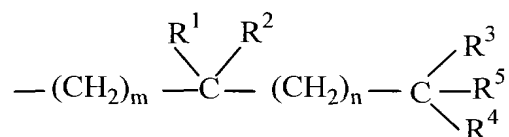
where Y_1 and Y_2 , which may be the same or different, are each selected from the group consisting of hydrogen and a hydroxy-protecting group, where R_{11} and R_{12} are each hydrogen or taken together are a methylene group, where R_6 and R_7 , which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and alkoxy, with the proviso that R_6 and R_7 cannot both be hydrogen, or R_6 and R_7 when taken together may represent the group $-(CH_2)_x-$ where X is an integer from 2 to 5, or R_6 and R_7 when taken together may represent the group $=CR_8R_9$ where R_8 and R_9 , which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and

alkoxy, or when taken together R_8 and R_9 may represent the group $-(CH_2)_x-$ where X is an integer from 2 to 5, and where the group R represents



where the stereochemical center (corresponding to C-20 in steroid numbering) may have the R or S configuration, (i.e. either the natural configuration about carbon 20 or the 20-epi configuration), and where Z is selected from Y , $-OY$, $-CH_2OY$,

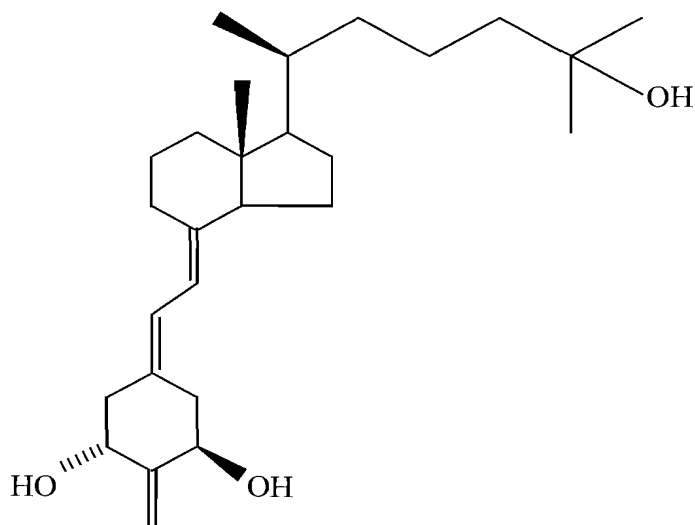
$-C\equiv CY$ and $-CH=CHY$, where the double bond may have the cis or trans geometry, and where Y is selected from hydrogen, methyl, $-COR^5$ and a radical of the structure:



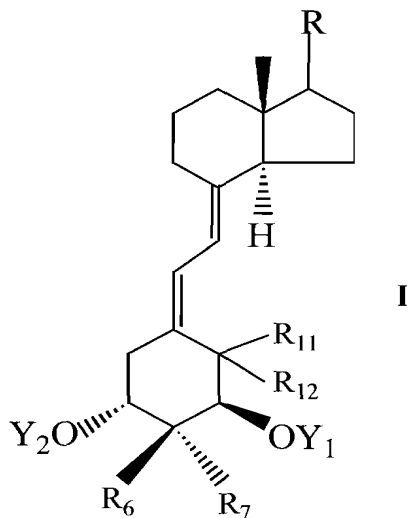
where m and n , independently, represent the integers from 0 to 5, where R^1 is selected from hydrogen, deuterium, hydroxy, protected hydroxy, fluoro, trifluoromethyl, and C_{1-5} -alkyl, which may be straight chain or branched and, optionally, bear a hydroxy or protected-hydroxy substituent, and where each of R^2 , R^3 , and R^4 , independently, is selected from deuterium, deuteroalkyl, hydrogen, fluoro, trifluoromethyl and C_{1-5} alkyl, which may be straight-chain or branched, and optionally, bear a hydroxy or protected-hydroxy substituent, and where R^1 and R^2 , taken together, represent an oxo group, or an alkylidene group, $=CR^2R^3$, or the group $-(CH_2)_p-$, where p is an integer from 2 to 5, and where R^3 and R^4 , taken together, represent an oxo group, or the group $-(CH_2)_q-$, where q is an integer from 2 to 5, and where R^5 represents hydrogen, hydroxy, protected hydroxy,

or C₁₋₅ alkyl and wherein any of the CH-groups at positions 20, 22, or 23 in the side chain may be replaced by a nitrogen atom, or where any of the groups -CH(CH₃)-, -(CH₂)_m-, -CR₁R₂- or -(CH₂)_n- at positions 20, 22, and 23, respectively, may be replaced by an oxygen or sulfur atom.

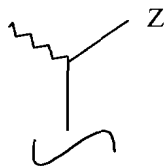
30. (New) The method of claim 29 wherein the compound administered is 2-methylene-19-nor-20(S)-1 α ,25-dihydroxyvitamin D₃ having the formula:



31. (New) A method of increasing rate of skeletal repair in a mammal having a bone implant or bone transplant by stimulating osteoblast-mediated growth of new bone at the site of the transplant or implant, comprising administering to the mammal at the site of the implant or transplant, in slow release form, a therapeutically effective amount of a compound having the formula:

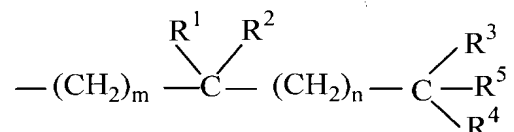


where Y_1 and Y_2 , which may be the same or different, are each selected from the group consisting of hydrogen and a hydroxy-protecting group, where R_{11} and R_{12} are each hydrogen or taken together are a methylene group, where R_6 and R_7 , which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and alkoxy, with the proviso that R_6 and R_7 cannot both be hydrogen, or R_6 and R_7 when taken together may represent the group $-(CH_2)_x-$ where X is an integer from 2 to 5, or R_6 and R_7 when taken together may represent the group $=CR_8R_9$ where R_8 and R_9 , which may be the same or different, are each selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, fluoroalkyl, hydroxy and alkoxy, or when taken together R_8 and R_9 may represent the group $-(CH_2)_x-$ where X is an integer from 2 to 5, and where the group R represents



where the stereochemical center (corresponding to C-20 in steroid numbering) may have the R or S configuration, (i.e. either the natural configuration about carbon 20 or the 20-epi configuration), and where Z is selected from Y , $-OY$, $-CH_2OY$,

-C≡CY and -CH=CHY, where the double bond may have the cis or trans geometry, and where Y is selected from hydrogen, methyl, -COR⁵ and a radical of the structure:



where m and n, independently, represent the integers from 0 to 5, where R¹ is selected from hydrogen, deuterium, hydroxy, protected hydroxy, fluoro, trifluoromethyl, and C₁₋₅-alkyl, which may be straight chain or branched and, optionally, bear a hydroxy or protected-hydroxy substituent, and where each of R², R³, and R⁴, independently, is selected from deuterium, deuterioalkyl, hydrogen, fluoro, trifluoromethyl and C₁₋₅ alkyl, which may be straight-chain or branched, and optionally, bear a hydroxy or protected-hydroxy substituent, and where R¹ and R², taken together, represent an oxo group, or an alkylidene group, =CR²R³, or the group -(CH₂)_p-, where p is an integer from 2 to 5, and where R³ and R⁴, taken together, represent an oxo group, or the group -(CH₂)_q-, where q is an integer from 2 to 5, and where R⁵ represents hydrogen, hydroxy, protected hydroxy, or C₁₋₅ alkyl and wherein any of the CH-groups at positions 20, 22, or 23 in the side chain may be replaced by a nitrogen atom, or where any of the groups -CH(CH₃)-, -(CH₂)_m-, -CR₁R₂- or -(CH₂)_n- at positions 20, 22, and 23, respectively, may be replaced by an oxygen or sulfur atom.

32. (New) The method of claim 31 wherein the compound administered is 2-methylene-19-nor-20(S)-1 α ,25-dihydroxyvitamin D₃ having the formula:

